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## A comprehensive study of fibroepithelial lesion of breast with special emphasis on challenges in diagnosing phyllodes tumor

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### Abstract

**Background:** Fibroepithelial lesions are one of the most common benign breast disease seen in day today practice. They comprise of a wide spectrum of tumors ranging from fibroadenoma to infrequent phyllodes tumor. Evaluation of fibroepithelial lesions on FNA material or biopsy material may be sometimes under interpreted as both fibroadenoma and phylloides tumor have few common morphological features. So a detailed histopathological study is necessary to identify the hurdles in diagnosis and management of patient. This study was conducted with an aim to stratify and classify various fibroepithelial lesions, to classify phyllodes tumor according to newer WHO guidelines, to study interobserver variations in diagnosing phyllodes tumor and other associated morphological features in fibroepithelial lesion.

**Materials and Methods:** This was retrospective study conducted in Department of Pathology, Hassan Institute of Medical Sciences, and Hassan the study was done on all breast biopsy samples received from the year January 2015 to April 2020 for a duration of 5years. Archived slides were reviewed in detail by three pathologists and fibroepithelial lesions were classified according to WHO classification of tumors of breast 2019.

**Results:** A total of 200 fibroepithelial lesions of breast were studied. 180 cases were fibroadenoma, 18 cases were phyllodes tumor and 2 cases were benign fibroepithelial neoplasm. Interobserver variation was seen in 6 cases of benign phyllodes tumor, whereas no ambiguity was seen in diagnosis of fibroadenomas.

**Conclusion:** Over diagnosis fibroadenomas as phyllodes tumor may have been prevented, if standard criteria were in use. Fibroadenoma and benign phyllodes tumor can be difficult to distinguish in some cases where focal leaf like growth pattern and hypercellularity can be seen. It is a good practice to evaluate the lesion as whole to come to a definitive diagnosis rather than emphasising on focal features.

**Keywords:** Fibroepithelial lesion, phyllodes tumor, cellular fibroadenoma

### Introduction

Fibroepithelial lesions of breast are one of the most common benign breast disease seen in day today practice. They comprise of a wide spectrum of biphasic tumors ranging from most common fibroadenoma to infrequent phyllodes tumor with epithelial and stromal components that demonstrate widely variable clinical behavior<sup>[1-3]</sup>. Fibroadenomas are benign tumor masses arising from both the epithelium and stroma of breast. It arises from terminal duct lobular unit from the intralobular stromal mesenchymal cells along with the hyperplasia of intralobular ductal and acinar epithelium<sup>[4-6]</sup>.

Phyllodes tumor is a rare fibroepithelial lesion as compared to fibroadenoma, with wide spectrum of morphology. Phyllodes tumors were classified according to three tier grading system of WHO classification into benign, borderline and malignant based on stromal cellularity, stromal overgrowth, stromal atypia, margins and mitosis<sup>[4-6]</sup>. Accurate diagnosis and grading of phyllodes tumors are important for patient management and prognosis, as higher grade correlates with increasing local recurrence risk and metastasis<sup>[3]</sup>. A rapidly growing mass or previously stable lesion showing accelerated growth is suggestive of phyllodes tumor clinically. Follow up ultrasound examinations can be helpful in demonstrating this rapid growth. However, phyllodes tumors cannot be reliably distinguished from fibroadenomas by imaging<sup>[4]</sup>. Evaluation of fibroepithelial lesions on fine needle aspiration material or core biopsy material specimens may be challenging as both fibroadenoma

and phyllodes tumor have few common morphological changes [2-4]. A commonly encountered problem is the distinction of benign phyllodes tumor from cellular fibroadenoma, which is largely due to the subjective nature of histologic features used in diagnosis and histologic overlap between these lesions [7-10].

### Aims and objectives of the study

1. To stratify and classify various fibroepithelial lesions.
2. To classify phyllodes tumor according to newer WHO guidelines
3. To study interobserver variations in diagnosing phyllodes tumor.
4. To study other associated morphological features in fibroepithelial lesions.

### Materials and Methods

The present study was a retrospective study of all breast specimens received from January 2015 to April 2020 in the Department of Pathology, Hassan Institute of Medical Sciences, and Hassan. A total of 200 breast specimens diagnosed as benign lesions were taken up for the study. All the breast cases which included lumpectomy, excision biopsies, tru-cut biopsies, mastectomy specimens and blocks for review were included in the study irrespective of age and sex. Breast specimens with epithelial malignancies and autolysed samples were excluded. Clinical details of the patients were collected from the medical records. Archived slides were retrieved and reviewed. Fibroepithelial lesions were studied in detail by three pathologists and classified according to 2019 WHO classification of tumors of breast.

### Results

A total of 200 fibroepithelial lesions were encountered in the

present study. The most common breast lesion diagnosed was a fibroadenoma accounting for 180 cases which was followed by phyllodes tumor constituting 18 cases. Sixteen cases were benign phyllodes tumor and two cases were malignant phyllodes tumor in this study. Benign fibroepithelial neoplasm constituted 2 cases.

**Table 1:** Age-wise classification of fibroadenoma

Age group in years	No. of Cases
20-30	40
31-40	73
41-50	63
51-60	16
61-70	3
71-80	4
81-90	1

In the present study, fibroadenoma was common in 3<sup>rd</sup> decade individuals followed by 4<sup>th</sup> and 2<sup>nd</sup> decade individuals. Least number of cases were seen in 8<sup>th</sup> decade. Bilateral breast fibroadenomas were perceived in 6.6% of cases. Right side of the breast was affected in 44% and left side in 49.4% of cases. However, side of the breast involved has no clinical or prognostic significance.

Of the total study group, 66.6% cases had exclusive fibroadenomas while 33.4% had fibroadenomas associated with other pathological changes. Table 2 depicts various histopathological changes in fibroadenomas. Most consistent associated microscopic entity was fibrocystic change (9.4%) followed by myxoid change (7.2%). Lactational changes were seen in five cases. Four cases of complex fibroadenoma were seen. One case of fibroadenoma with tubular adenoma was seen. Proliferative epithelial changes were seen in 7 cases.

**Table 2:** Histopathological changes within fibroadenoma.

S. No	Lesions	No. of cases	Percentage (%)
1	Fibroadenoma (FA)	116	64.4
2	Giant fibroadenoma	4	2.2
3	Fibroadenoma with morphologic variants	30	16.6
	FA with myxoid change	13	7.2
	FA with hyaline change	6	3.3
	FA with calcification	3	1.7
	FA with fibrosis	2	1.1
	FA with hemorrhage	1	0.5
	FA with sclerosing adenosis	1	0.5
	Complex fibroadenoma	4	2.2
4	FA with fibrocystic change	17	9.4
5	FA with tubular adenoma	1	0.5
6	FA with lactational change	5	2.8
7	FA with proliferative epithelial changes		
	Usual ductal hyperplasia	6	3.3
	Atypical ductal hyperplasia	1	0.5
	Total	180	100

The most common age group diagnosed with phyllodes tumor in the present study was 21-40yrs. benign phyllodes tumor constituted 16 cases and 2 cases of malignant phyllodes tumors were seen.

Interobserver variation was seen in 6 cases of benign phyllodes tumor. Four cases previously diagnosed benign phyllodes tumor were reclassified as cellular fibroadenoma as these cases showed only stromal cellularity and lacked other features of benign phyllodes tumor. There was complete agreement among the three pathologists reviewing

the slides of these 4 cases. One cases showed focal leaf-like growth pattern and other areas showed features of fibroadenoma. Another case showed focal stromal hypercellularity and 0-3mitoses/10hpf. These cases was opined as fibroadenoma by two reviewing pathologists and other opining as benign phyllodes tumor. So these case were classified as benign fibroepithelial neoplasm.

### Discussion

Fibroepithelial lesions of the breast are a heterogeneous

group of lesions that include fibroadenomas and phyllodes tumors of varying malignant potential and is a diagnostic challenge as many features overlap among fibroadenoma and phyllodes tumor<sup>[9]</sup>. In the present study, fibroadenoma was the most common fibroepithelial lesion (90%) which was concordant with study done by Wani et al.<sup>[6]</sup>, Daramola et al.<sup>[8]</sup> and Lawton et al.<sup>[10]</sup>

The most frequent association of fibroadenoma with fibrocystic change was similar to studies as that of Wani et al.<sup>[6]</sup> and Geethamala K et al.<sup>[11]</sup>. Fibroadenoma with proliferative changes were seen in 7 cases which was concordant with study done by Wani et al.<sup>[6]</sup>

In our study, all fibroadenoma cases reviewed did not change the histopathological diagnosis among pathologists which highlights the unambiguity in the histopathologic diagnosis of simple fibroadenoma. There were however four cases previously diagnosed phyllodes tumor, which turned out as fibroadenoma after the audit. These are believed to be cellular fibroadenoma as they were encapsulated and maintained the biphasic architecture of fibroadenoma. And 2 cases which showed both fibroadenoma and phyllodes change which were reclassified as benign fibroepithelial neoplasm. Some fibroadenomas may show focal leaf-like architecture and lack hypercellular stroma which can be misinterpreted as phyllodes tumor<sup>[4]</sup>. WHO Classification of Tumours of the Breast has suggested that, a diagnosis of benign fibroepithelial tumor to be rendered so as to avoid unnecessary additional surgical treatment in difficult cases and to convey that these lesions are currently not reproducibly distinguished by pathologists<sup>[5]</sup>.

In the present study, phyllodes tumor were seen in 18 cases (9%) our findings show that benign phyllodes tumor is significantly the most common, followed by malignant phyllodes tumor sequentially accounting for 88.9%, and 11%, respectively which was concordant with the study done by Daramola et al.<sup>[8]</sup> No cases of borderline phyllodes tumor were seen in our study.

## Conclusion

Fibroepithelial lesions are most common in 3<sup>rd</sup> decade individuals in the present study and fibroadenoma being the most common change. Evaluation of fibroepithelial lesions showed interobserver variability in six cases in our study. Fibroadenoma and benign phyllodes tumor can be difficult to distinguish in some cases where focal leaf like growth pattern and hypercellularity can be seen. It is a good practice to evaluate the lesion as whole to come to a definitive diagnosis rather than emphasising on focal features. Long term follow up studies are needed in case of ambiguous lesions to establish guidelines for diagnosis and recurrence rates.

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